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**FISCHER, Hartmut** [DE/NL]; Dalkruid 13, NL-5731 TP Mierlo (NL).

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(71) Applicant (for all designated States except US): **DE-GUSSA AG** [DE/DE]; Bennigsenplatz 1, 40474 Düsseldorf (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **KÜHNLE, Adolf** [DE/DE]; Greifenberger Strasse 30, 45770 Marl (DE). **JOST, Carsten** [DE/DE]; Bebelstrasse 14 a, 45770 Marl (DE). **RAULEDER, Hartwig** [DE/DE]; Uhlandweg 51 a, 79618 Rheinfelden (DE). **RENTROP, Corne** [NL/NL]; Willem de Zwijgerstraat 52, NL-5616 AE Eindhoven (NL). **VAN DAM, Roelant** [NL/NL]; Onze Lieve Vrouweplein 20 c, NL-6211 HE Maastricht (NL). **TIMMER, Klaas** [NL/NL]; Bildzigt 15, NL-3721 XJ Bilthoven (NL).

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(54) Title: PROCESS FOR PRODUCING LOW-K DIELECTRIC FILMS

(57) Abstract: The invention relates to processes for producing low-k dielectric films on semiconductors or electrical circuits, which comprises using incompletely condensed polyhedral oligomeric silsesquioxanes of the formula  $[(R_aX_bSiO_{1.5})_m(R_cY_dSiO)_n]$  with: a, b = 0-1; c, d = 1; m+n ≥ 3; a+b = 1; n, m ≥ 1, R = hydrogen atom or alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl, cycloalkynyl, aryl or heteroaryl group, in each case substituted or unsubstituted, X = an oxy, hydroxyl, alkoxy, carboxyl, silyl, silyloxy, halogen, epoxy, ester, fluoroalkyl, isocyanate, acrylate, methacrylate, nitrile, amino or phosphine group or substituents of type R containing at least one such group of type X, Y = hydroxyl, alkoxy or a substituent of type O-SiZ<sub>1</sub>Z<sub>2</sub>Z<sub>3</sub>, where Z<sub>1</sub>, Z<sub>2</sub> and Z<sub>3</sub> are fluoroalkyl, alkoxy, silyloxy, epoxy, ester, acrylate, methacrylate or a nitrile group or substituents of type R and are identical or different, not only the substituents of type R being identical or different but also the substituents of type X and Y in each case being identical or different, and comprising at least one hydroxyl group as substituent of type Y, for producing the film, and to low-k dielectric films produced by this process.



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